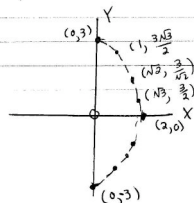


2. (b) We defer the issue of what sort of curve C is until part (c) below. The sketch below is rough.



(c) $\frac{x}{2} = \sin\left(\frac{\pi t}{2}\right)$ and $\frac{y}{3} = \cos\left(\frac{\pi t}{2}\right)$, so

$$\left(\frac{x}{2}\right)^2 + \left(\frac{y}{3}\right)^2 = \sin^2\left(\frac{\pi t}{2}\right) + \cos^2\left(\frac{\pi t}{2}\right) = 1$$

for any t in $[0, 2]$, and for any corresponding values of x and y . The equation is

$$\frac{x^2}{4} + \frac{y^2}{9} = 1.$$

This is the equation of an ellipse with centre at the origin, major axis along the Y-axis, and minor axis along the X-axis. The semi-major axis has length 3 and the semi-minor axis has length 2. As $0 \leq t \leq 2$, C comprises only the portion of this ellipse to the right of the Y-axis. [If $0 \leq t \leq 4$, we obtain the entire ellipse.]

—H